REMARKS

Claims 1-31 are pending in the present application. Claims 1-18, 20, 21, 23-25, 27, 28, and 30 have been amended. Claim 31 is new. Claims 1-17, 24, and 31 are independent claims. The Examiner is respectfully requested to reconsider the outstanding rejections in view of the above amendments and the following remarks.

Allowable Subject Matter

The Examiner has withdrawn the previous indication that claims 9-10, 13-16, and 24-30 are allowed (as indicated in the Office Action of July 12, 2005).

Interview of June 9, 2006

Applicants wish to thank Examiner Kevin Harper for taking the time to discuss the present application with Applicants' representative, Jason Rhodes (Reg. No. 47,305), during the personal interview on June 9, 2006. The substance of the interview is provided below.

Claims Discussed: Claim 1.

Prior Art Discussed: System described in Figs. 24 and 25 of Applicants' specification.

Proposed Amendments: The proposed amendments to claim 1 have been implemented above.

General Results: A general agreement was reached that the proposed amendments would distinguish over the characterization of Figs. 24 and 25 presented by Applicants' representative. However, the Examiner requested that the next response should include detailed comments supporting this characterization.

Rejection Under 35 U.S.C. § 102

Claims 1-30 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Applicants' admitted prior art, as described in Figs. 19-25 (hereafter "APA"). This rejection is respectfully traversed.

It is respectfully submitted that independent claims 1-17 and 24 are not anticipated by the prior art cited by the Examiner. MPEP § 2131 sets forth the following:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. Of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claims." *Richardson v. Suzuki Motor Co.*, 868 F2d 1226, 1236, 9 USQP2d 1913, 1920 (Fed. Cir. 1989).

Independent claims 1-17 and 24 recite data bits being organized into symbols and assigned to bit spaces allocated for transmission. According to the claims, the data bits are assigned in such a manner that all the data bits in each symbol are transmitted during the same period of the transmission timing. Applicants respectfully submit that the APA fails to teach or suggest these features.

Synopsis of APA

The APA describes a Discrete Multi-Tone (DMT) modem system. In particular, the APA may transmit bits according to a single bit map mode (bit map A) or dual bit map mode (bit maps A and B). Bit map A corresponds to the FEXT portion of each period, while bit map B corresponds to the NEXT portion of the period. For purpose of convenience, the dual bit map mode is discussed below with accompanying citations to the Background Art section of the specification. However, it is respectfully submitted that, upon further review of the Background Art section, it will be readily apparent to the Examiner that similar arguments also apply to the single bit map mode of the APA.

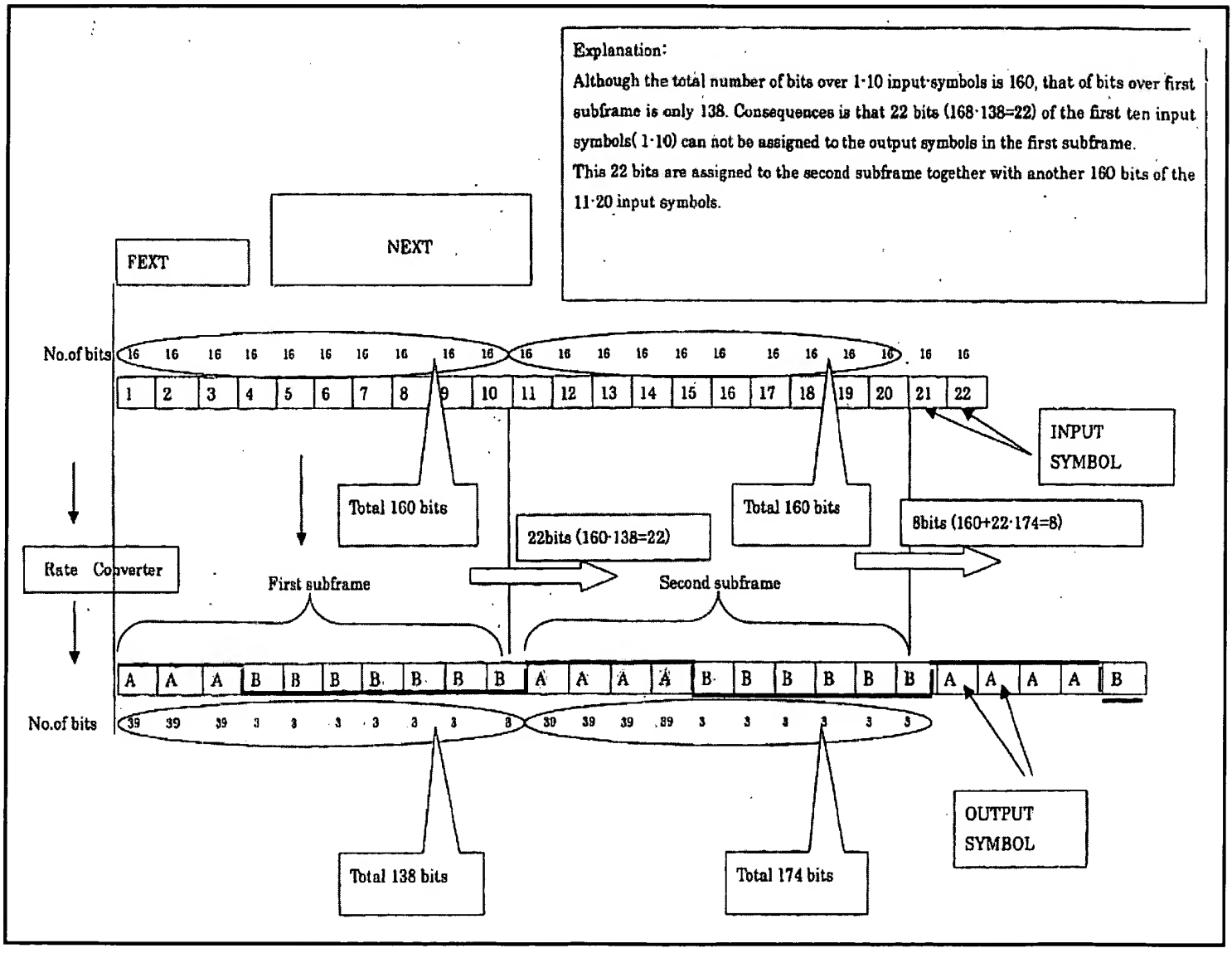
In the APA, before rate conversion occurs, the data is sent in at a uniform rate and stored in the form of fixed bits in units of symbols (see page 10, lines 22-23). Thus, before rate conversion, the APA determines a fixed number of bits for each input symbol. For example, the APA may calculate the number of bits in each DMT symbol to be 16 bits, according to the equation in page 12, lines 17-22. Also, the APA system predetermines whether each DMT symbol is associated with a bit map A or bit map B, according to the equation in page 11, lines 12-20.

Before rate conversion occurs (and, thus, before data bits are actually assigned to bit maps A and B), the APA system calculates a fixed number of bits to be assigned to each bit map A and each bit map B. For example, according to page 12, line 23 – page 13, line 7, the number of bits in bit map A is calculated based on the transmission rate, the transmission time for the entire hyperframe, and the predetermined number of DMT symbols assigned to bit map A. In the particular example of the APA described in the specification, bit map A has 39 bits and bit map B has 3 bits.

According to the operation of the rate convertor in the APA, "bits are assigned to the bit map A and the bit map B of the hyperframe as *fully as possible*, and therefore the data of a given period may be *assigned to the subsequent periods*," resulting in further delays (page 13, lines 16-19; emphasis added). As such, the data of a particular DMT symbol may be assigned by the APA for transmission during two different periods.

This is illustrated in the Explanatory Drawing provided below. Particularly, this drawing shows the particular example of the APA system using both bit maps A and B, in which each input symbol has a fixed number of 16 bits, each bit map A is assigned 39 bits, and each bit map B is assigned 3 bits. The drawing further assumes a situation where, before rate conversion, the data is sent in at a uniform rate of 10 input symbols (i.e., 160 bits) per period. However, based on the FEXT and NEXT portions of the first period, the first subframe output from the APA's rate convertor contains 3 bit map A symbols and 7 bit map B symbols. Thus, while the DMT symbols for the first period contain 160 data bits, only 138 bits can be assigned to the first subframe by

the APA rate convertor. Thus, 22 bits of the DMT symbols in the first period must be assigned to the second subframe (i.e., the next period) for transmission. Since the rate convertor fills each bit map A and each bit map B *as fully as possible*, this will cause data bits from a DMT symbol in the first period to be split amongst the first and second subframes (i.e., first and second periods) for transmission.



EXPLANATORY DRAWING

APA Fails to Disclose Each Claimed Feature

Accordingly, the APA system does *not* assign data bits for transmission in such a manner that all the data bits of each symbol are transmitted during the same period, as claimed. Instead, as described above, the APA's rate convertor causes data bits in a particular DMT symbol to be assigned to different subframes and, thus, transmitted during different periods.

At least for the reasons given above, Applicants respectfully submit that independent claims 1-17 and 24 are allowable. Accordingly, Applicants submit that claims 18-23 and 25-30 are allowable at least by virtue of their dependency on an allowable claim. Thus, the Examiner is respectfully requested to reconsider and withdraw this rejection.

New Claim

Applicants respectfully submit that new independent claim 31 recites a combination of elements that are neither taught nor suggested by the prior art of record. Accordingly, Applicants submit that claim 31 is presently in condition for allowance.

Conclusion

In view of the above amendments and remarks, the Examiner is respectfully requested to reconsider the outstanding rejections and issue a Notice of Allowance in the present application.

However, should the Examiner believe that any outstanding matters remain in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Reg. No. 47,305) at the telephone number of the undersigned to discuss the present application in an effort to expedite prosecution.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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